

CLAIMS

What is claimed is:

1. An isolated polynucleotide selected from the group consisting of:
  - (a) a first nucleotide sequence encoding a polypeptide of at least  
5 126 amino acids having a sequence identity of at least 50% based on  
the Clustal method of alignment when compared to a polypeptide  
consisting of SEQ ID NO:2, and
  - (b) a second nucleotide sequence encoding a polypeptide of at least  
10 369 amino acids having a sequence identity of at least 82% based on  
the Clustal method of alignment when compared to a polypeptide  
selected from the group consisting of SEQ ID NOs:4, 6, and 8.
2. A polynucleotide sequence of Claim 1, wherein sequence identity is at least 85%.
3. A polynucleotide sequence of Claim 1, wherein sequence identity is at least 90%.
4. A polynucleotide sequence of Claim 1, wherein sequence identity is at least 95%.
- 15 5. The polynucleotide of Claim 1 wherein the polynucleotide encodes a polypeptide  
selected from the group consisting of SEQ ID NOs:2, 4, 6, and 8.
6. An isolated polynucleotide comprising a nucleotide sequence of at least  
125 contiguous nucleotides from a nucleotide sequence selected from the group consisting of  
SEQ ID NOs:1, 3, 5, and 7.
- 20 7. The polynucleotide of Claim 6, wherein the polynucleotide comprises a  
nucleotide sequence selected from the group consisting of SEQ ID NO:1, 3, 5, and 7.
8. The polynucleotide of Claim 1, wherein the polypeptide is a
9. An isolated complement of the polynucleotide of Claim 1, wherein (a) the  
complement and the polynucleotide consist of the same number of nucleotides, and (b) the  
25 nucleotide sequences of the complement and the polynucleotide have 100%  
complementarity.
10. An isolated nucleic acid molecule that hybridizes with the isolated  
polynucleotide of Claim 1 under a hybridization condition of 0.1X SSC, 0.1% SDS, and  
65°C.
- 30 11. A cell comprising the polynucleotide of Claim 1.
12. The cell of Claim 11, wherein the cell is selected from the group consisting of a  
yeast cell, a bacterial cell and a plant cell.
13. A transgenic plant comprising the polynucleotide of Claim 1.
14. A method for transforming a cell comprising introducing into a cell the  
35 polynucleotide of Claim 1.

15. A method for producing a transgenic plant comprising (a) transforming a plant cell with the polynucleotide of Claim 1, and (b) regenerating a plant from the transformed plant cell.
- 5 16. A method for producing a polynucleotide fragment comprising (a) selecting a nucleotide sequence comprised by the polynucleotide of Claim 1, and (b) synthesizing a polynucleotide fragment containing the nucleotide sequence.
17. The method of Claim 16, wherein the fragment is produced *in vivo*.
- 10 18. An isolated polypeptide selected from the group consisting of (a) a first polypeptide of at least 126 amino acids having a sequence identity of at least 50% based on the Clustal method of alignment when compared to a polypeptide consisting of SEQ ID NO:2, and (b) a second polypeptide of at least 369 amino acids having a sequence identity of at least 82% based on the Clustal method of alignment when compared to a polypeptide selected from the group consisting of SEQ ID NOs:4, 6, and 8.
- 15 19. The polypeptide of Claim 18, wherein the sequence identity is at least 85%.
20. The polypeptide of Claim 19, wherein the sequence identity is at least 90%.
21. The polypeptide of Claim 19, wherein the sequence identity is at least 95%.
22. The polypeptide of Claim 19 wherein the polypeptide has a sequence selected from the group consisting of SEQ ID NOs:2, 4, 6, and 8.
- 20 23. The polypeptide of Claim 18, wherein the polypeptide is a sterol delta-14 reductase.
24. A chimeric gene comprising the polynucleotide of Claim 1 operably linked to at least one suitable regulatory sequence.
25. A method for altering the level of sterol delta-14 reductase expression in a host cell, the method comprising:
- 25 (a) Transforming a host cell with the chimeric gene of Claim 24; and
- (b) Growing the transformed cell in step (a) under conditions suitable for the expression of the chimeric gene.
26. The method of Claim 25 wherein the isolated polynucleotide consists of a nucleotide sequence selected from the group consisting of SEQ ID NOs:1, 3, 5, and 7.